

Research Interests of Physicians in Two Practice-Based Primary Care Research Networks

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Regional practice-based network research has grown significantly in the past 15 years. Previous studies have reported on characteristics of physicians who participate in network research, but little is known about the specific *a priori* research interests of practicing physicians. Knowledge of such interests could be useful in planning network research studies. We conducted a mail survey to assess the research interests of primary care physicians in two contiguous research networks at the University of California at San Francisco (UCSF) and at Stanford University. Among 120 respondents from the UCSF Collaborative Research Network and 85 from the Stanford Ambulatory Research Network, the most common topics of interest were disease prevention, communication and compliance, and managed care. Among specific conditions, heart disease, hypertension, and respiratory infection were of interest to the majority of respondents. Topics not of interest to network members were obstetrics, diagnostic procedures, alcoholism, drug abuse, tuberculosis, male genito-urinary problems, occupational hazards, domestic violence, and AIDS and HIV. Identification of network physician research interests can help focus research and recruitment efforts on topics of interest and provide estimates of participation levels for planning studies and preparing funding applications for research networks.

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Conducting research using primary care practice-based networks has been promoted for several reasons. The primary reason is that research from academic settings often fails to address the clinical questions that are most important to primary care physicians who see patients as a full time occupation.^{1,2} In addition, primary care research can be difficult in academic settings because of the relatively small primary care base that may not be representative of the surrounding community.

Practice-based networks, while not necessarily representative of all practices, are believed to be more representative than outpatient clinics in medical centers or referral clinics.³ The representative nature of practice-based research has several advantages. First, it allows the study of diseases in patients as they present to the primary care physician, rather than a subset of patients selected for referral on the basis of difficult or unrepresentative problems. This is an important advantage when studying diseases such as asthma, which have a broad spectrum of severity, with the “base of the iceberg” seen only in the primary care setting. Second, it

allows the study of diseases, and their treatment, in a setting similar to the target setting for the study’s results. Finally, studies of clinical decision-making in community practice settings can provide insights for incorporation into the development of practice guidelines and serve as a testing site for implementation.⁴

A recent review listed 28 active practice networks in North America.⁵ Previous publications have provided more detailed information on individual networks, including the Dartmouth COOP Project,⁶ the Ambulatory Sentinel Practice Network,⁷ the Upper Peninsula Research Network,⁸ the Wisconsin Research Network,⁹ and the University of California, San Francisco (UCSF), Collaborative Research Network.¹⁰ The structure and nature of the various networks differ. For example, the Upper Peninsula Research Network is composed of family physicians who teach or precept students from the Upper Peninsula Campus of the Michigan State University College of Human Medicine.⁸ In contrast, the Wisconsin Research Network was established by the Wisconsin Academy of Family Physicians, and participating

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primary care physicians are drawn from practicing physicians throughout the state, without regard to academic ties.⁹

While the articles cited above have provided details on the structure of various networks, and their accomplishments have been highlighted in original research publications,¹¹⁻¹⁹ little has been published about the research interests of primary care physicians within the various networks. We believe that knowing the research interests of network physicians is critical to performing individual studies. Personal interest in the topic, relevance to one's practice, and "buying in" to the study enhances the research experience of the physician and facilitates conduct of the study. A previous study¹⁰ of one of our networks found that 40% of family physicians serving on the clinical faculty were interested in participating in collaborative research, with more than half of the physicians willing to participate in randomized trials (63%), patient surveys (60%), evaluation of physician practices (59%), patient referral to research conducted elsewhere (54%), or chart reviews (53%). To our knowledge, no study has assessed network physician interest in specific research topics. The purpose of our study was to characterize physicians and their practices and to determine specific research interests, thereby assessing the feasibility of conducting collaborative research on particular topics and enhancing linkages between investigators and practicing physicians with similar research interests.

Methods

Network Development

Two geographically contiguous, nonoverlapping, collaborative research networks have evolved in the Greater San Francisco Bay Area of California: the UCSF Collaborative Research Network of the Department of Family and Community Medicine at UCSF, and the Stanford Ambulatory Research Network of the Division of Family Medicine at Stanford University. Membership in one network precludes membership in the other.

In 1984, a faculty member (D.B.P.) in the Department of Family and Community Medicine at UCSF began to identify office-based physicians in the greater San Francisco Bay area who had an interest in participating in practice-based research.¹⁰ Physicians with volunteer clinical appointments in the department were the primary source of physician members of the network. Membership was supplemented by personal referral from other physicians and faculty. A number of primary care internists with clinical appointments in the Department of Medicine were added to the pool of network physicians in 1986. The UCSF Network currently is governed by an advisory committee, which comprises practice-based physicians who are members of the Network and university-based researchers in the Department of Family and Community Medicine. A semi-annual newsletter is sent to each participating physician as a method of maintaining interest and as a recruiting device.

A faculty member (D.H.T.) in the Division of Family Medicine at Stanford University surveyed all identified office-based family practice physicians in the local area (i.e., Santa Clara and southern San Mateo counties) to ascertain physicians who were interested in participating in office-based research. Physicians were identified from the 1993 *Directory of Diplomates, American Board of Family Practice*, the *American Academy of Family Physicians 1992-93 Membership Directory*, the county medical associations for the geographic area surveyed, and current business listings for family practice and general practice in local telephone directories. Excluded from the list were family medicine residents and family physicians in residency or university-based practices ($n = 12$). Of the 307 physicians sent surveys, 206 (67%) responded after two mailings, of which 176 physicians (85%) were in practice. Among the 176 responding physicians, 85 (48%) stated that they were interested in office-based research. These 85 primary care physicians made up the new Stanford Ambulatory Research Network.

Survey Methodology

After formation of the UCSF Collaborative Research Network, it became necessary to update membership enrollment and information in the network database on a regular basis. D.B.P. and M.S.C.-M. assembled a new list consisting of physicians with active, unpaid appointments on the clinical faculty in the Department of Family and Community Medicine at UCSF and primary care physicians who had previously participated in department-sponsored practice-based studies. Physicians with specialty certification in pediatrics, surgery, psychiatry, and obstetrics and gynecology were then excluded (unless the physician was also certified in family practice or internal medicine). A mailed survey was sent to the 347 physicians who made up the list. Responses to this survey and phone follow-up were used to determine whether each physician was eligible to be a member of the UCSF Network by virtue of being involved in the delivery of primary care services and, if eligible, whether he or she was interested in participating in practice-based research. Of the 347 physicians surveyed by UCSF, 27 had moved and could not be located and 43 were not involved in primary care. Of the remaining 277 physicians, 55 (20%) did not respond to two mailings and a phone follow-up, and 102 physicians stated they were not interested in practice-based research.

The 120 eligible physicians with an interest in practice-based research completed a survey asking for information on themselves, the organization of their practice, and the characteristics of the patients in their practice. Previous research with a subgroup of these physicians indicated that their estimates of practice characteristics were valid when compared with an on-site audit (unpublished data). They were also asked to rate their level of interest in participating in research on each of 34 topic areas on a 1 to 5 Likert scale (1 = very interested, 5 = not at all interested). The topic areas were stated as short phrases, and included specific diseases or conditions (e.g., tuberculosis, domestic violence), specific patient subpopulations (e.g., adolescent

TABLE 1.—Physician and Practice Characteristics for Members of the UCSF and Stanford Networks*

	UCSF	Stanford
n	120	85
Age (years)	45 ± 8	45 ± 11
Sex (M/W)	104/16	59/26
Graduated from medical school after 1975	57	54
Board-certified	96	80
Specialty		
Family medicine	75	93
Internal medicine	11	1
Other	14	6
Group practice	64	68
Patient visits per week	97 ± 44	97 ± 37

*Data are means ± SD or %.

medicine), and areas related to the process of medical care (e.g., computerized medical records). The 120 responding physicians made up the new and ongoing members of the UCSF Collaborative Research Network.

A modified version of the UCSF survey instrument was completed by the 85 physicians who indicated an interest in office-based research in the survey of family physicians done by Stanford University. In addition, this survey contained an open-ended question asking physicians for additional research topics in which they were interested in participating.

Analytic Strategy

Responses from the UCSF and Stanford surveys were entered into individual databases at each site, then merged into a single database. When identical questions were asked on each of the two surveys, answers were coded in an identical manner. When survey questions differed, common categories were developed for the two surveys. Categorical variables were analyzed using the χ^2 statistic and Fisher's exact test. Continuous variables with normal distributions were analyzed using Student's *t* test and analysis of variance. The Wilcoxon rank sum test was used to test the significance of differences in scales of research topic interest, because the scales were not normally distributed.

Results

The demographic characteristics and practice characteristics of physician members of the UCSF Collaborative Research Network and the Stanford Ambulatory Research Network (Table 1) are quite similar with regard to physician's mean age, time since medical school graduation, proportion in group practice, and patient volume. A slightly larger proportion of Stanford Network members are women (26% versus 16%) and fewer Stanford Network members are board certified (80% versus 96%). The UCSF Network has greater diversity in board certification.

TABLE 2.—Average Physician Estimates of Patient Age, Ethnicity, and Payment Arrangement Categories for the UCSF and Stanford Networks*

	UCSF	Stanford
n	120	85
Patient age categories		
Children (≤ 13 years)	12 ± 1	14 ± 1
Adolescents (14–18 years)	8 ± 1	10 ± 1
Adults (19–64 years)	60 ± 2	58 ± 2
Older adults (≥ 65 years)	19 ± 2	18 ± 2
Patient ethnic categories (%)		
Non-Hispanic white	61 ± 3	63 ± 2
Hispanic	19 ± 2	18 ± 2
Asian/Pacific Islander	9 ± 1	13 ± 2
African American	8 ± 1	5 ± 1
Other	1 ± 0	1 ± 1
Payment arrangement categories (%)		
Fee for service	32 ± 2	19 ± 2
Prepaid private insurance	25 ± 2	50 ± 3
No insurance	13 ± 2	10 ± 2
Medicare	9 ± 1	12 ± 1
Medicaid	14 ± 2	6 ± 2
Other	3 ± 1	3 ± 1

*Data are mean % ± SE. Percentages do not always add to 100; not all of the original physician estimates totaled 100% and results were rounded.

Physician estimates of the distribution of patient age categories, ethnic categories, and payment arrangement categories are provided in Table 2. The majority of patients are estimated to be between 19 and 64 years of age, with nearly identical age distributions between the UCSF and Stanford networks. More than 60% of patients in both networks are reported to be non-Hispanic white. Patient payment arrangements are significantly different: Stanford Network members estimated a higher proportion of prepaid private insurance patients (50% versus 25%) and a lower proportion of fee for service (19% versus 32%) and Medicaid patients (6% versus 14%) than UCSF Network members.

Table 3 indicates the percentage of network members who indicated that they were interested or very interested (scores of 1 or 2 on a 5-point scale) in a particular research topic, either specified on the questionnaire or that they chose to write in. We categorized the topics according to five general groupings for ease of interpretation. The "other interests" category yielded 26 separate interest areas, of which only one (sexually transmitted diseases) was suggested by three respondents; another six topics were suggested by two physicians each.

Relatively high percentages of physicians in both networks were interested in a variety of topics. When the same topics were listed on both surveys, members of the two networks ranked them similarly. In addition, the top five interests in both networks were similar: smoking cessation, doctor-patient communication, hypertension,

TABLE 3.—Research Topics of Interest to Network Members*

	UCSF	Stanford
<i>n</i>	120	85
Disease prevention and health education		
Alcoholism	22.2	—
Diet/dietary change	50.5	—
Disease prevention	—	78.0
Domestic violence	—	27.5
Drug abuse	27.6	—
Health education	51.4	70.6
Occupational hazards	29.0	—
Smoking	57.7	—
Doctor-patient relationships		
Doctor-patient communication	57.1	65.9
Patient compliance	—	52.5
Psychosocial care	27.8	—
Specific Patient Populations		
Adolescent medicine	29.3	—
Geriatrics	39.4	—
Gynecology	42.0	—
Obstetrics	31.7	—
Pediatrics	35.4	—
Sports medicine	37.6	—
Practice and practice management		
Computer/records	40.0	—
Diagnostic procedures	47.2	—
General office medicine	54.1	—
Lab tests/results	38.0	—
Managed care	—	51.8
Organizational/practice	40.5	—
Payment/economics	39.0	—
Quality assurance	48.5	—
Specific conditions		
AIDS/HIV	28.7	26.0
Arthritis	26.3	—
Cancer	32.0	—
Diabetes	49.5	—
Heart disease	44.4	50.6
Hypertension	56.4	54.9
Male genito-urinary problems	30.3	—
Obesity and management	34.3	—
Osteoporosis	—	45.1
Pain management	39.4	49.4
Peptic ulcer/dyspepsia	—	40.2
Respiratory infections	—	53.0
Sexually transmitted disease	33.3	—
Tuberculosis	23.7	—
Upper respiratory infection	30.3	—
Urinary incontinence	—	29.3
Urinary tract infection	32.0	—

*Data are %.

munication, hypertension, and respiratory infections were the top five interests for Stanford Network members. Examining the median scores for the four broad categories of interest that contained responses from members of both networks, the highest interest was in research on practice and practice management (median score 2.7 for UCSF and 2.0 for Stanford), followed by disease prevention and health education (2.8 for UCSF and 2.3 for Stanford), specific disease conditions (2.9 for both UCSF and Stanford), and doctor-patient relationships (3.5 for UCSF and 2.2 for Stanford).

Exploratory analyses were conducted to compare research interests of physicians by specialty (internal medicine vs. family practice), percent of patients in managed care (above or below group median), previous research experience, and sex. Differences in research interests by specialty were consistent with the differences in patient populations seen: family physicians were more interested in obstetrics-gynecology and pediatric topics. Percent of patients in managed care did not appear to have any consistent influence on topics chosen. Physicians with previous research experience reported a greater interest in specific condition topics as a group ($P = 0.01$) that reflected a slightly greater interest in virtually every topic listed. Male and female physicians were generally similar in the proportion interested or very interested in each topic, with the exceptions of osteoporosis (62% women versus 39% men, $P = 0.06$), urinary incontinence (50% women versus 22% men, $P = 0.01$), health education (86% women versus 65% men, $P = 0.06$), and patient-physician communication (71% women versus 46% men, $P = 0.04$).

Since it is equally important to note specific topics *not* of interest to a large proportion of network members, Table 4 presents the percentage who indicated that they were not or not at all interested in a particular topic (scores of 4 or 5 on a 5-point scale). Overall, generally low percentages of physicians in both networks indicated that they were not interested in specific topics. Research topics that were not of interest to more than 40% of UCSF Network members were obstetrics, diagnostic procedures, alcoholism, drug abuse, tuberculosis, male genito-urinary problems, occupational hazards, and AIDS and HIV. Although a smaller number of topics was offered to Stanford Network members, more than 40% were not or not at all interested in only AIDS and HIV and domestic violence.

Of UCSF Network members, 67% had participated in at least one research study in the past, 33% in two or more; 48% of Stanford Network members had participated in at least one research study in the past. Members' responses to queries on factors influencing the likelihood of research participation were very similar between the networks. Approximately 50% felt that continuing medical education credit, fulfillment of clinical faculty appointment hour requirements, or paid honoraria would increase or greatly increase their likelihood of participating in studies. Thus approximately 50% would not have their participation influenced by any of these factors.

general office medicine, and patient education were the top five interests for UCSF Network members while disease prevention, health education, doctor-patient com-

TABLE 4.—Research Topics Not of Interest to Network Members*

	UCSF	Stanford
n	120	85
Disease prevention and health education		
Alcoholism	49.5	—
Diet/dietary change	25.7	—
Disease prevention	—	7.4
Domestic violence	—	41.3
Drug abuse	49.0	—
Health education	15.3	10.6
Occupational hazards	42.0	—
Smoking	18.2	—
Doctor-patient relationships		
Doctor-patient communication	17.2	9.7
Patient compliance	—	8.7
Psychosocial care	36.1	—
Specific patient populations		
Adolescent medicine	37.3	—
Geriatrics	32.3	—
Gynecology	26.0	—
Obstetrics	58.6	—
Pediatrics	36.5	—
Sports medicine	38.6	—
Practice and practice management		
Computer/records	37.2	—
Diagnostic procedures	50.8	—
General office medicine	18.4	—
Lab tests/results	27.0	—
Managed care	—	19.3
Organizational/practice	32.7	—
Payment/economics	37.2	—
Quality assurance	25.8	—
Specific conditions		
AIDS/HIV	41.6	45.5
Arthritis	35.4	—
Cancer	29.9	—
Diabetes	26.2	—
Heart disease	24.2	13.5
Hypertension	14.9	15.9
Male genito-urinary problem	42.4	—
Obesity and management	27.8	—
Osteoporosis	—	23.2
Pain management	35.6	21.7
Peptic ulcer/dyspepsia	—	23.2
Respiratory infections	—	16.8
Sexually transmitted disease	25.3	—
Tuberculosis	46.4	—
Upper respiratory infections	30.3	—
Urinary incontinence	—	34.2
Urinary tract infection	24.8	—

*Data are %.

levels for study planning and grant proposals. It is notable, though perhaps not surprising, that for physicians from both the UCSF and Stanford networks, the topics of interest to the greatest proportion of physicians were generally concerned with non-disease-specific areas of disease prevention, communication and compliance, and managed care. Among specific conditions, only three of the most common conditions (heart disease, hypertension, and respiratory infection) were chosen by >50% of respondents. Additional areas of potentially greater interest to researchers and funding agencies, namely domestic violence, AIDS, alcoholism, drug abuse, tuberculosis, and urinary incontinence, were relatively unpopular, being chosen by <30% of respondents.

Asking physicians to rank their interests from a list of topics, as was done in the current study, has the advantage of specificity of responses, thereby avoiding the dispersion of topics that might occur with an open-ended format. In the Stanford survey, an additional question asking for other topics of interests yielded 26 separate interest areas, of which only one (sexually transmitted diseases) was suggested by three respondents.

It is important to note that interest in a topic area is not synonymous with willingness to participate in a specific study. The latter would likely depend on the specific hypothesis, methods employed, and resources required to participate. To the extent self-reported interests reflect physician willingness to participate in specific studies, this information can prove quite helpful to networks as they plan studies and prepare funding applications.

The representative nature of practice-based research networks with regard to other physicians interested in primary care research, as well as those in office-based practice, has been addressed previously.¹⁹ The UCSF and Stanford networks are two relatively small, similar research networks located in a single geographic area. As such, the results may not be generalizable to geographically dispersed networks or networks in areas with less managed care. For example, the proportion of our network members in group practices is nearly double the national figure. Members of the UCSF and Stanford networks do, however, have characteristics comparable to national norms provided for family physicians, general practitioners, and general internists²⁰ with regard to physician demographic characteristics and average number of patient visits per week. Our network member characteristics are also comparable to those of members of Ambulatory Sentinel Practice Network, a binational practice-based primary care research network comprised of 72 practices in the United States.²¹ Furthermore, Ambulatory Sentinel Practice Network members have been found to be comparable to general and family practices included in the National Ambulatory Medical Care Survey,¹⁹ although patients seen by our Network members represent a more ethnically diverse population than do the Ambulatory Sentinel Practice Network or the National Ambulatory Medical Care Survey.

Physician and practice characteristics have been reported in the current study to allow the reader to compare

Discussion

Identification of network physician research interests *a priori* can help focus research and recruitment efforts on topics of interest and provide estimates of participation

results of our study with the research interests of other network physicians. The 120 members of the UCSF Collaborative Research Network and the 85 members of the Stanford Ambulatory Research Network are primarily in small group practices, serving predominantly non-Hispanic white populations in private, prepaid, or fee-for-service settings. This broad-brush portrait, however, belies the diversity of the physicians, their patients, and their practices. Also diverse are the interests of the physicians in various topics that are of importance in primary care. The diverse nature of the physicians, practices, and patients, coupled with their high level of interest in research participation, suggests that the groups constitute a rich resource for conduct of practice-based research.

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